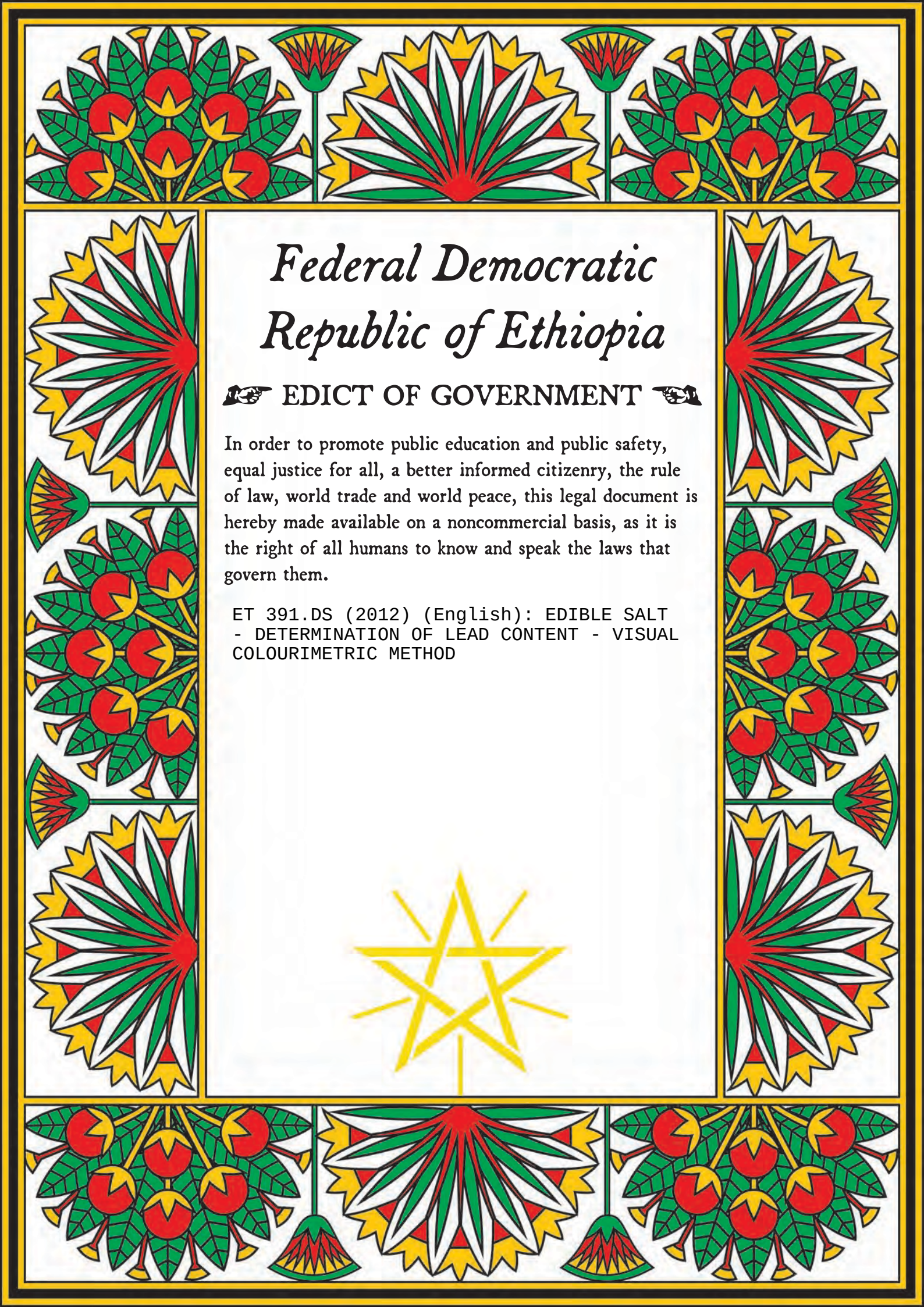




Federal Democratic Republic of Ethiopia

👉 EDICT OF GOVERNMENT 👈

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them.

ET 391.DS (2012) (English): EDIBLE SALT
- DETERMINATION OF LEAD CONTENT - VISUAL
COLOURIMETRIC METHOD



BLANK PAGE



**Edible salt Determination of lead
content Visual colourimetric methods**

ICS: 67.220.20

Published by Ethiopian Standards Agency

©ESA



Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Food Additives and Contaminants (TC21) and published by the Ethiopian Standards Agency (ESA). The standard is a reaffirmation for reprint of the Ethiopian Standard ES 391:2000, Edible salt-Determination of lead content – visual colorimetric method, with some editorial changes without altering the technical contents in the former text.

Edible salt — Determination of lead content — Visual colourimetric methods

1 Scope

This Ethiopian Standard specifies the routine method for the determination of lead content in salt.

2 Normative reference

The following standard contains provisions, which through reference in this text constitute the provisions of this Ethiopian Standard. At the time of publication the edition indicated was valid. All standards are subject to revision and parties to agreements based on this Ethiopian Standard are encouraged to investigate the possibility of applying the most recent edition of the Ethiopian Standard indicated below. Registers of currently valid standards are maintained in the Quality and Standards Authority of Ethiopia.

ES 298:2000, *Edible salt- Specification*.

ES 299:2000, *Sampling*.

3 Apparatus

The following apparatus shall be used:

3.1 Nessler cylinders, 50 ml capacity.

4 Reagents

The following reagents of recognized analytical reagent quality shall be used:

4.1 **Acetic acid, approximately** — 33 per cent (V/V).

4.2 **Dilute ammonium hydroxide**, — approximately 4N.

4.3 **Potassium cyanide solution** — 10g of potassium cyanide shall be dissolved in 90 ml of water and 2 ml of hydrogen peroxide (20 volume strength) shall be added to it. It shall be allowed to stand for 24 hours and made up to 100 ml with water.

4.4 **Sodium sulphide solution** — 10g of sodium sulphide ($\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O}$) shall be dissolved in 100 ml of water.

4.5 **Standard lead solution** — 0.160g of lead nitrate shall be dissolved in 5 ml of concentrated nitric acid and diluted to 100 ml in a graduated flask. Again 10 ml of the solution shall be diluted to 1000 ml. One millilitre of the solution finally obtained contains 0.01 mg of lead (as Pb).

5 Sampling

Samples shall be taken in accordance with ES 299.

6 Procedure

6.1 Preparation of the test sample

About 80 to 100 g of the ground sample shall be spread in a petridish. It shall be dried in an oven at 140 to 150°C for at least 4 hours. It shall be cooled in a desiccator and weighed. Drying, cooling and weighing shall be repeated until constant mass is obtained.

6.2 Test portion

Weigh, to the nearest 0.001g, 5g of the derived test sample.

6.3 Determination

Dissolve the test portion in water in a Nessler cylinder and add 5 ml of acetic acid (4.1) to it. Make the mixture alkaline with dilute ammonium hydroxide (4.2) and 1 ml of potassium cyanide solution (4.3) added. Filter if it is turbid. Add two drops of sodium sulphide solution and mix well. Carry Out a control test in another Nessler cylinder in exactly the same manner but using 1 ml of standard lead solution (4.5) in place of the dried sample. Dilute the solution in both the cylinders to 50 ml mark. Compare the colour produced in the two cylinders against a white background.

6.4 The material shall be taken to have not exceed the limits specified in the Table 2 of ES 298 if the intensity of colour obtained with the material is not greater than that obtained in the control test.

7 Test report

The test report shall include the following information:

- a) a reference to this Ethiopian Standard;
- b) the result and method of expression used;
- c) all information necessary for complete identification of sample;
- d) any unusual features noted during the determination; and
- e) any operation not included in this Ethiopian Standard or in the Ethiopian Standard to which reference is made, or regarded as optional.



Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1970.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check weather goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.

Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

ESA has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of ESA.

International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the international Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for standardization (ARSO).

More Information?

Contact us at the following address.

The Head Office of ESA is at Addis Ababa.

☎ 011- 646 06 85, 011- 646 05 65

☎ 011-646 08 80

✉ 2310 Addis Ababa, Ethiopia

E-mail: info@ethiostandards.org,

Website: www.ethiostandards.org



Standard Mark